BEFORE THE

Federal Communications Commission

WASHINGTON, D.C. 20554

In The Matter of	)	
	)	
Amendment of the Commission's Rules to Establish Part 27, the Wireless Communications Service ("WCS")	)	**GN Docket No. 96-228**

To: The Commission

COMMENTS
OF
SHELL OFFSHORE SERVICES COMPANY

Shell Offshore Services Company ("SOSCO"), by its attorneys, hereby submits these Comments in response to the Notice of Proposed Rule Making ("NPRM") adopted by the Federal Communications Commission ("Commission") in the above-captioned proceeding on November 8, 1996.[1/] In the NPRM, the Commission proposed to establish a new Wireless Communications Service ("WCS") in the bands 2305-2320 MHz and 2345-2360 MHz and to assign this spectrum through auctions.

I. BACKGROUND

1. SOSCO is a subsidiary of Shell Offshore, Inc. ("SOI"). SOI is the largest producer of petroleum and natural gas in the Gulf of Mexico. In addition to its

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1/ 61 Fed. Reg. 59048 (November 20, 1996).

production activities in the relatively shallow waters along the continental shelf, SOI has leased vast acreage from the federal government at water depths of more than 1,500 feet. As production platforms begin to extract petroleum resources from these deepwater areas, the Gulf of Mexico is expected to become the largest petroleum and natural gas frontier in the United States.

2. SOSCO supports the petroleum and natural gas exploration and production activities of SOI. In this regard, on August 28, 1996, the Commission granted SOSCO authority to construct and operate a new 6 GHz, broadband, digital, common carrier microwave network in the Gulf of Mexico.[2/] While this network has been designed primarily to support SOI's growing telecommunications requirements in the Gulf of Mexico, it also is expected to serve as the principal telecommunications infrastructure for the rest of the petroleum and natural gas industries in the Gulf of Mexico.

II. COMMENTS

3. As explained in more detail below, SOSCO supports the Commission's proposal to establish a WCS in the bands

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2/ See Shell Offshore Services Company; Applications for Authority to Operate Common Carrier Digital Microwave Stations in the 5925-6425 MHz and 6525-6875 MHz Frequency Bands, DA 96-1458 (released: August 29, 1996).

2305-2320 MHz and 2345-2360 MHz and, assuming the prerequisites for auctioning this spectrum are satisfied, it also supports the Commission's proposal to license this spectrum through auctions. SOSCO, however, urges the Commission to allocate and license the bands 2305-2320 MHz and 2345-2360 MHz for use in the Gulf of Mexico when it allocates and licenses this spectrum for use in the rest of the United States.

A. Allocating and Licensing the Bands 2305-2320 MHz and 2345-2360 MHz in the Gulf of Mexico Would Serve the Public Interest

4. The Gulf of Mexico is one of the primary petroleum and natural gas production areas in the United States. As described in the news article attached hereto as Exhibit A, the amount of money being invested by the petroleum industry in the Gulf of Mexico for purposes of drilling and exploration has increased significantly in the past two years. This increase is primarily attributable to the deployment of new deepwater production facilities -- similar to those described above -- beyond the outer continental shelf. The resurgence of exploration and production activity in the Gulf of Mexico, quite naturally, has been accompanied by an increase in the demand for reliable voice, data, and video telecommunications services.

5. Providers of telecommunications services in the Gulf of Mexico, however, have been unable to meet the growing demand for telecommunications services, including mobile services such as Specialized Mobile Radio ("SMR") services and fixed services such as Multipoint Multichannel Distribution Services ("MDS"), because the spectrum normally used to provide those services is not available for licensing in the Gulf of Mexico. For instance, despite the fact that MDS licenses recently were auctioned for the entire continental United States, all of Alaska, every Hawaiian island, and such far-flung places as American Samoa, Guam, the Virgin Islands, Puerto Rico, and the Northern Mariana Islands, no MDS license for the Gulf of Mexico was auctioned by the Commission. Likewise, the Commission failed to include the Gulf of Mexico in its recent auctions of Personal Communications Service ("PCS") and 900 MHz SMR licenses.

6. Moreover, it bears noting that certain telecommunications requirements unique to the Gulf of Mexico cannot be adequately met using existing spectrum allocations. One such requirement is the need for reliable, point-to-point microwave services at deepwater production platforms. These platforms frequently are located more than 30 miles from other man-made structures and, because they are tethered to the ocean floor by steel tendons rather than

permanently anchored to the ocean floor like traditional platforms, often sway back and forth with the ocean. For these reasons, SOSCO and others in the petroleum and natural gas industries have concluded that spectrum above 3 GHz cannot be used to provide reliable point-to-point services at deepwater production platforms. Unfortunately, the spectrum below 3 GHz that historically has been used to provide such services is now available only on a secondary basis. As a result, SOSCO currently is trying to use spectrum between 2450 MHz and 2483.5 MHz at its deepwater production platforms, but this spectrum is shared with unlicensed radiofrequency devices and, accordingly, is susceptible to interference. Because many deepwater production platforms cost over $1 billion to construct and typically house over 100 people at any given time, the lack of any spectrum capable of providing reliable point-to-point service to these platforms has become a major concern in the petroleum and natural gas industries.

7. In light of the foregoing, SOSCO urges the Commission to include the Gulf of Mexico if it allocates the bands 2305-2320 MHz and 2345-2360 MHz for the WCS. Such an allocation clearly would be in the public interest because the bands 2305-2320 MHz and 2345-2360 MHz could be used to meet the growing need for both mobile and fixed telecommunications services in the Gulf of Mexico. For

instance, this spectrum could be used to provide MDS and SMR services in the Gulf of Mexico. More importantly, this spectrum could be used to provide point-to-point services at deepwater platforms. At least one equipment manufacturer has told SOSCO it will develop point-to-point equipment capable of operating in the bands 2305-2320 MHz and 2345-2360 MHz bands if this spectrum becomes available for use by the petroleum and natural gas industries at deepwater locations.

8. Assuming all of the prerequisites for auctioning spectrum in the bands 2305-2320 MHz and 2345-2360 MHz are satisfied, including mutual exclusivity, SOSCO supports use of auctions to license this spectrum. While SOSCO does not believe auctions always are the best or the most efficient way of allocating spectrum, it does not take issue with the Commission's assertion in the NPRM that the Omnibus Consolidated Appropriations Act, 1997 requires it to license the bands 2305-2320 MHz and 2345-2360 MHz through auctions.[3/]

B. The Commission Should Issue a Single License for the Entire Gulf of Mexico

9. Among other things, the Commission asked for comment in the NPRM on the appropriate geographic area that

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[3/] NPRM at ¶ 14.

each WCS license should cover. Specifically, the Commission asked for comment on whether WCS licenses should be issued on the basis of the 51 Metropolitan Trading Areas ("MTAs") used to license PCS, on the basis of regional service areas, or on a nationwide basis.[4/]

10. SOSCO urges the Commission to use MTAs to issue WCS licenses. However, SOSCO urges the Commission to treat the Gulf of Mexico as an MTA and to issue a single WCS license for the entire Gulf of Mexico. Like many of the MTAs created by the Commission for purposes of earlier auctions, such as American Samoa and the Northern Mariana Islands, the entire Gulf of Mexico logically should be treated as a single MTA. The Gulf of Mexico is a unique environment that is distinct from onshore locations in the United States. Its population is transient and almost exclusively industrial. Moreover, only by licensing the Gulf of Mexico as a single region will a WCS licensee be able to offer affordable service to a sufficient number of users to justify the large scale investment in sites, equipment, and site rentals necessary to offer WCS.

11. SOSCO proposes that the service area boundaries for the Gulf of Mexico MTA extend 200 miles out from the United States side of the border between Mexico and Texas on the western side of the Gulf of Mexico, which is

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[4/] NPRM at ¶ 10.

approximately 26° north latitude, and continue along the 200 mile limit from the coastline until the 200 mile limit reaches a point off southwestern Florida at 26° latitude. The boundary line then would follow the latitudinal line northward until it intersects with the coastline. The term "coastline" has been defined by the Commission as "the line of ordinary low water along that portion of the coast which is in direct contact with the open sea and the line marking the seaward limit of the inland waters."[5/] The term "inland waters" has been defined by the Commission to include all harbors and bays along the Texas, Louisiana, Mississippi, Alabama, and Florida coasts, and the islands along the circumference of the Gulf, including the Chandeleur Islands and those surrounding the Mississippi Sound.[6/]

C. The Commission Should Issue a Single License for All 30 MHz of Spectrum in the Bands 2305-2320 MHz and 2345-2360 MHz

12. In the NPRM, the Commission requested comment on the appropriate amount of spectrum to be provided to each WCS licensee. In particular, the Commission asked whether

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[5/] Applications of Petroleum Communications, Inc. and Gulf Cellular Associates for New Domestic Cellular Radio Telecommunications Service Systems in the Gulf of Mexico, 1 FCC Rcd 511, 513 (1986).

[6/] Id. at 513.

5 MHz, 10 MHz, 15 MHz, or 30 MHz is the most suitable amount for each WCS licensee.[7/]

13. SOSCO believes that the full 30 MHz of spectrum in the bands 2305-2320 MHz and 2345-2360 MHz should be allocated to each WCS licensee. If the spectrum were to be divided among one or more WCS licensees, there would be insufficient spectrum available for each licensee to provide advanced telecommunications services such as Internet access, videoconferencing, and other broadband services. In the Gulf of Mexico, where the population is almost exclusively industrial, potential WCS licensees may decide not to make the enormous investment necessary to provide service unless there is sufficient bandwidth to provide the the full array of advanced services required by the large, sophisticated businesses present in the Gulf of Mexico.

III. CONCLUSION

14. In recent years, the demand for voice, data, and video telecommunications services in the Gulf of Mexico has increased without any corresponding increase in the availability of spectrum to meet the demand. The need for spectrum in the Gulf of Mexico is particularly acute at deepwater locations. Because the bands 2305-2320 MHz and

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7/ NRPM at ¶ 11.

2345-2360 MHz could be used to satisfy some of the spectrum requirements in the Gulf of Mexico, SOSCO supports the Commission's proposal to establish a WCS in these bands and, assuming the prerequisites for auctioning this spectrum are satisfied, it also supports the Commission's proposal to license this spectrum through auctions. SOSCO, however, urges the Commission to include the Gulf of Mexico when allocating and licensing the bands 2305-2320 MHz and 2345-2360 MHz.

WHEREFORE, THE PREMISES CONSIDERED, Shell Offshore Services Company respectfully urges the Federal Communications Commission to take action consistent with these Comments.

Respectfully submitted,

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Dated: December 4, 1996

EXHIBIT A

"Washington Post, p. H1, March 21, 1996"

BUSINESS

GETTIN A LEG UP

In Gulf of Mexico's Depths, Shell Finds Lots of Oil—and a Way to Restructure

By Daniel Southerland
Washington Post Staff Writer

IN THE GULF OF MEXICO

On April 10, five powerful tugboats will slowly tow a massive platform into the Gulf of Mexico, where it is expected to set a water depth record for offshore oil production.

Resembling a small industrial complex, the platform, code-named Mars, is designed to process oil and gas, house 106 people, generate enough power for a town of 6,500 people, and withstand hurricane-force, 71-foot waves and 140 mph winds.

Once Mars's 23,000-ton floating superstructure is anchored to the floor of the sea by 12 tubular steel pipe tendons each more than a half mile long, it will become the deepest man-made structure in the world.

Mars represents a huge investment, even for a major oil company. Shell Offshore Inc., a New Orleans-based subsidiary of Shell Oil Co. that owns 71.5 percent of the project, and its partner BP Exploration Inc., which owns about 28 percent, will spend $1.2 billion during Mars's construction and development phase.

But despite the costs, other big oil companies are watching Mars—and Shell's march deeper into the Gulf of Mexico—not only because of the record depth, the technology, and the monumental size of Shell's oil platforms, but also because of their profit-making potential.

The technology's effectiveness is no longer in question and the profit potential has become clear, in part because Shell re-engineered itself and its relationships with its contractors to get the costs down.

Auger, Shell's first deep-water platform and a forerunner to Mars, was designed to produce a peak of 40,000 barrels of oil a day. It is now producing 70,000 barrels a day. That is more than 1 percent of total U.S. daily oil production, estimated in February at 6.45 million barrels.

Analysts now predict that the Gulf of Mexico will become the largest oil and gas frontier in the United States, exceeding the reserves of Alaska's Prudhoe Bay, and that it will produce sizable profits despite today's relatively low oil and gas prices.

Shell is now by far the leader in the deep-water gulf. Shell commands nearly a third of all acreage leased from the federal government in water depths of more than 1,500 feet and the company has seven large deep-water projects such as Mars under development or in production.

> "I like being out here because this is where the future is."
>
> — Roy Farrow, Auger technician, while showing a visitor around drilling platform

Just a decade ago, the Gulf of Mexico looked like a dead end for the major oil companies. Most U.S.-based firms began moving overseas, and Gulf of Mexico production went into steep decline. In 1994, oil production in the United States hit a 40-year low, and the nation for the first time imported more than 50 percent of its crude oil.

But in that same year, Shell Oil Co., the U.S. subsidiary of the Royal Dutch/Shell Group, stabilized its U.S. production primarily through the development of new fields in the gulf and along the Gulf Coast. Shell Oil at that time had nowhere else to look because Royal Dutch/Shell had re-

See MARS, H6, Col. 3

BY DANIEL SOUTHERLAND—THE WASHINGTON POST

Construction chief John Haney formed contractor teams to build the platform.

THE MARS OIL PLATFORM

Mars is a tension-leg oil drilling platform, meaning its position is controlled not by a rigid tower but by tension on 12 steel pipe tendons that connect in groups of three at the platform's corners and are anchored to concrete piles on the sea floor. Other features:

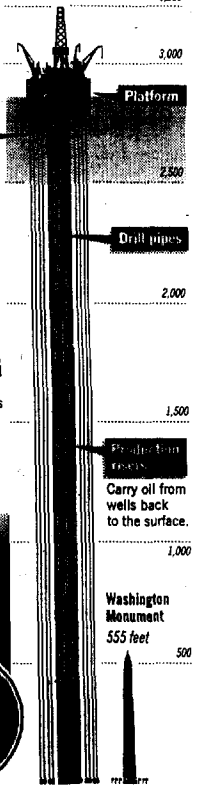
- **Total weight:** 36,500 tons.
- **Designed:** To withstand 71-foot waves and 140-mph winds.
- **Production:** 100,000 barrels of oil and 110 million cubic feet of natural gas a day.
- **Oil delivery:** Oil will be moved 116 miles via an 18¾-inch pipeline to the mainland.

MAP BY LARRY FOGEL—THE WASHINGTON POST

PLATFORM COMPONENTS

1. **Derrick**
2. **Quarters module** Houses 106 people.
3. **Power module**
4. **Hull** Four circular steel columns, each 66.5 feet wide and 162 feet high, connected by four 24-foot high pontoons. The hull weighs 15,650 tons.
5. **Processing module** Contains separation and treatment facilities to process oil and natural gas.
6. **Drilling module** Houses drilling equipment.
7. **Well bay module** Houses drilling motors.

Mars oil platform
3,250 feet from sea floor to top of drilling rig (deepest structure in the world)

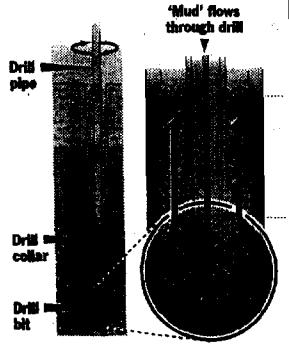


Steel tendons
Twelve long strands of 28-inch diameter pipe, with walls 1.2 inches thick, joined in segments 250 feet long. They permit some lateral movement of the platform, but restrict vertical movement.

Drill pipes
Carry oil from wells back to the surface.

DRILLING TECHNOLOGY

From the platform, rotating drill pipes stretch to the seabed, where heavy drill collars and hardened drill bits cut wells into the rock. "Mud," a fluid mix of clay, water and barite, flows through the drill bit and shaft, providing lubrication and removing cuttings. The mud also acts as a counterweight to prevent blowouts of pressurized oil or gas.

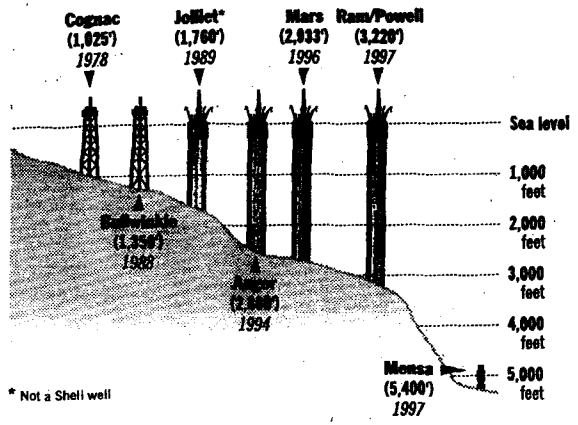


SOURCE: Shell Offshore Inc.

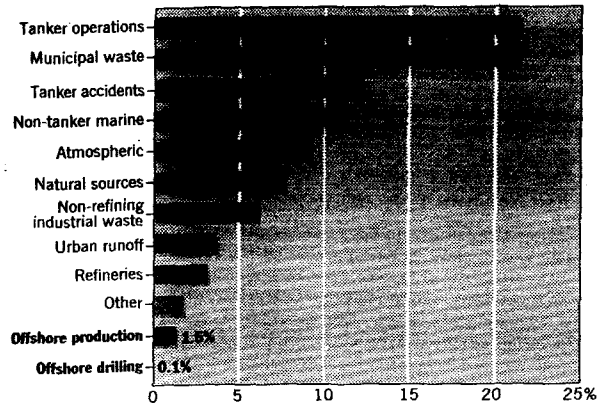
GRAPHICS BY ROBERT DORRELL—THE WASHINGTON POST

DRILLING DEEPER FOR CRUDE

Shell Offshore Inc. keeps sinking deeper wells in the productive Gulf of Mexico. The steady progress of deep-water wells:



PERCENTAGES, BY SOURCE OF POLLUTION



SOURCES: Shell Offshore Inc., National Academy of Sciences, Warlick

Shell Finds Profits in Going Deep for Oil

MARS, From H1

stricted its exploration and production activities to the United States, and California and East Coast states had banned most offshore drilling.

In December 1995, the American Petroleum Institute reported that crude oil production in the lower 48 states fell by 1.4 percent during the year, compared with an average of more than 3 percent for each of the two previous years. Offshore drilling in the Gulf of Mexico, API said, partly explained the reduced rate of decline.

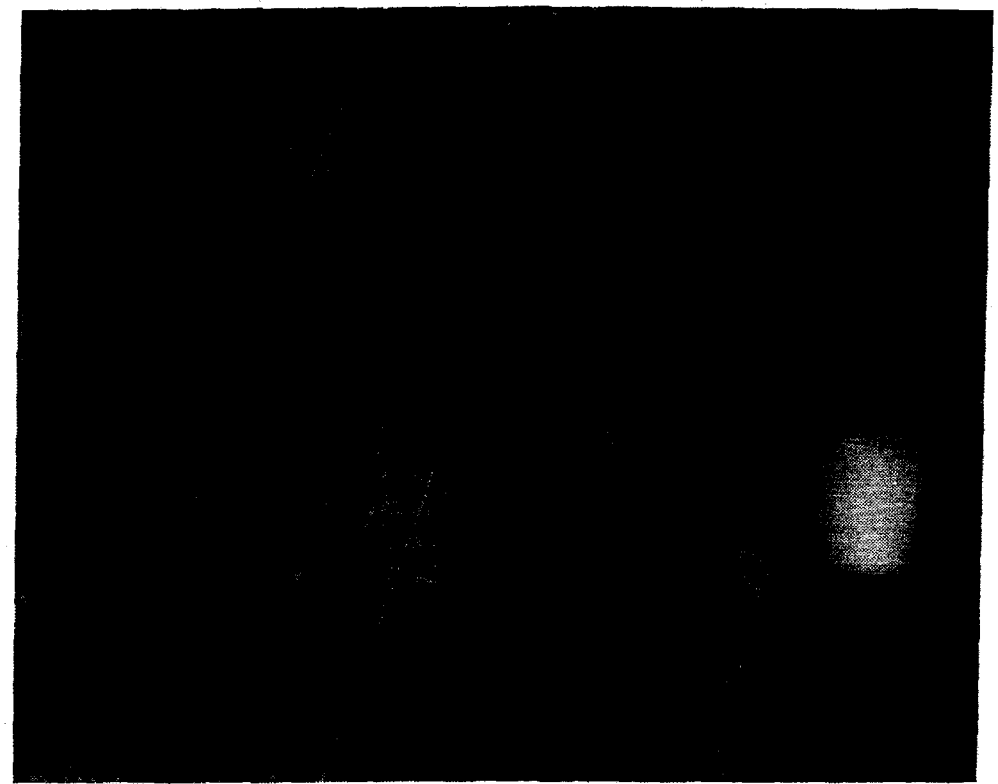
"The Gulf of Mexico is not going to eliminate imports, but it will lessen the need for them," said Rich Pattarozzi, 52, general manager of the deep-water division of Shell Offshore. According to Pattarozzi, Shell and other companies have sharply increased their exploration and drilling activities in the gulf over the past year. Lease sales have risen significantly.

Shell also is demonstrating that bigger reserves exist in the deep-water gulf than originally estimated. Mars, for example, will be drilling 130 miles southeast of New Orleans into the largest oil and gas discovery to be made in the gulf in 25 years.

With an estimated 700 million barrels of oil and gas equivalent in recoverable reserves, Mars is designed to produce much more each day than Auger.

Shell is proving that it can sharply reduce the time required between discovery of reserves and production of oil and gas. It built Mars more cheaply and much more quickly than Auger.

But Shell also is actively teaming up with other companies on a number of projects. In the latest development, Shell announced on March 11 that it will soon begin drilling an exploratory well at a world-record depth of 7,625 feet in the Gulf of Mexico in partnership with Mobil Corp. of Fairfax, Amoco Corp. and Texaco Inc.



SHELL OFFSHORE INC.

The Mars platform under construction at Ingleside, Tex., near Corpus Christi. Booms are lowering modules onto hull.

Although the operations of Shell Oil Co.'s parent have sometimes been affected by the concerns of environmentalists, Shell has met little such resistance in the gulf. No scenic views are threatened, and industry statistics show that offshore drilling and production

there and elsewhere are among the most environmentally safe operations in the oil business. In 1985, for example, the National Academy of Sciences found that oil tanker operations—and municipal hydrocarbon wastes—caused roughly 25 times as much pollution as offshore drilling.

Shell owes its success in the gulf partly to cost-cutting. Like other oil companies, Shell has "downsized" and used advances in 3-D seismic imaging and high-speed computers that interpret the seismic data to lower its costs.

But while Shell has reduced its own employment in the United States by 32 percent—from 31,000 to 21,000 over the past four years—it also has created jobs in the long-depressed oil service, equipment and construction industries.

More than 900 companies in 30 states and 33 companies in 11 countries were involved in the Auger project, according to Shell. That translates into about 3,000 U.S. jobs directly related to the project.

Along with the downsizing, Shell has undergone a massive "cultural change" that has become critical to the profitability of its offshore operations, according to more than a dozen managers, specialists and oil platform employees of Shell Offshore who were interviewed for this article in Texas, Louisiana and the Gulf of Mexico.

They tell the story of how Shell Offshore got a lock on the Gulf of Mexico through a combination of geological data and intuition, the buying up of leases, fast-track construction and production, and finally the company's ongoing cultural transformation.

Shell Offshore's management has been attempting to transform a highly bureaucratic, hierarchical organization into one that is more innovative, open and responsive to employees' ideas.

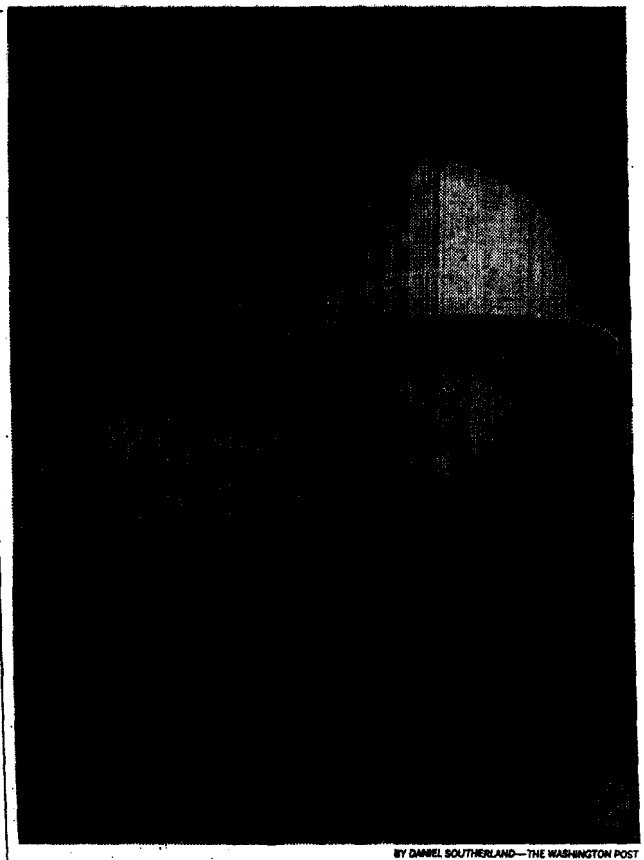
Recently, Shell has extended the concept of more openness to new risk-sharing "alliances" with key oil service, equipment and construction companies, and it applied this concept in the design and construction of Mars.

"The real challenge we had was changing our culture," said Dan Godfrey, 51, the Mars project manager based in New Orleans. "We wanted to get Mars's costs down by $150 million and cut the time down by six months. So we had to do something differently than we did before."

As in many oil companies, however, Shell's operations are dominated by engineers, who like to control things. Getting the engineers to accept the idea of delegating more authority to those who do the hands-on work of drilling and production or those who do contract work for Shell has not been easy. But analysts say the approach is succeeding.

"Shell has become an incredibly innovative company," said Arthur W. Tower III, research manager at Howard, Weil, Labouisse, Friederichs Inc. in

See MARS, H7, Col. 1



BY DANIEL SOUTHERLAND—THE WASHINGTON POST

Technician Roy Farrow took team-building course before joining Auger crew.

Gulf of Mexico Oil, Gas Reserves May Exceed Those in Alaska's Prudhoe Bay

MARS, From H6

New Orleans. "It's a conservatively run company with a flair."

Early Exploration

A little more than a decade ago, Shell Oil Co.'s success in the deep water was far from certain. "In the early 1980s, the question was whether hydrocarbons even existed out there," said Pattarozzi in an interview in Houston.

But Shell gambled on its geologists—oilmen call them "rock hounds"—whose work is part science, part intuition. The geologists argued that the deep-water gulf, at water depths exceeding 1,500 feet, might hold some of the world's biggest undiscovered reserves.

Shell quietly began buying up deep-water leases in the mid-1980s even before it could be certain that large amounts of oil or gas were embedded in the rock deep below the seafloor.

Jim Funk, 46, a Shell geologist who became exploration manager for the company's offshore operations in 1986, recalls debates within the company over "bright spots"—areas among the seismic images that Shell gathered that might indicate the presence of oil or gas.

One of the biggest debates was over "turbidites." These are sedimentary rocks that were formed by deposits from bottom currents.

"The company was having a lot of trouble understanding turbidites and the deep-water sands," Funk said. Shell formed a task force of about 20 geologists and geophysicists and "we went to places all over the world where turbidite sections crop out—coastal California, Newfoundland, France, Spain, Italy and Norway, and we learned a lot," Funk said.

Shell was encouraged enough to launch a major seismic research program using two geophysical vessels that worked at a "frenetic pace," according to Funk.

The vessels trailed arrays of air guns causing acoustical pulses to be introduced into the water. These generated energy waves that reflected off structures beneath the sea floor, giving hints of where oil or gas could be found.

The data was not conclusive. Three-D seismic imaging had not yet been fully developed, and the geologists were still having to use their intuition. But Shell bought leases and began drilling exploratory wells. One of those wells, drilled in 1987, showed good prospects at the location now occupied by the Auger tension-leg platform.

In 1988, Shell Offshore installed the world's tallest fixed platform, Bullwinkle, at a depth of 1,350 feet. In early 1995, it brought its Tahoe and Popeye fields on stream at 1,500 and 2,100 feet.

But those were overshadowed by Auger, a $1.2 billion project. At a depth of 2,860 feet, it was the largest tension-leg platform ever built and one of only six in the world. It marked Shell's first large-scale production from the deep-water frontier.

Auger's Auspicious Start

Auger's crew members refer to their oil platform as the "Starship Enterprise" of the oil industry, because of its state-of-the-art central control room and computer systems. And to some oilmen, the mating at sea of Auger's 10,500-ton deck with its 20,000-ton hull by the Louisiana-based firm of McDermott Inc. required such precision that it resembled a gigantic space docking. Auger's deck alone is the size of two football fields.

Auger, located 214 miles southwest of New Orleans, floats on four large cylindrical columns held in place by a dozen flexible tubular steel tendons anchored to the sea floor. The tendons pull down on the platform so that it can move laterally but will not bob up and down like a cork.

Auger's crew members were selected not only for their technical talent, but also for their behavioral skills. Roy Farrow, 33, an Auger technician, took a course in team-building concepts in California before joining the crew and, like others, was given a personality test to determine how he might best work with other crew members.

It was technicians such as Farrow, not managers, who shaped a decision to buy a $250,000 gas compressor last year that enhanced Auger's capacity to process natural gas. That expenditure paid off in December when the U.S. demand for natural gas soared, driving gas prices sharply higher.

"I like being out here because this is where the future is," Farrow said recently as he showed a visitor around Auger.

A Step Further

Despite its success with Auger, Shell decided that it had to cut costs and simplify the structure of Mars, which was scheduled to be its next major tension-leg platform. Shell and BP did this by overlapping the design and construction stages of the project—starting construction even before the design was completed—and by forming alliances with contractors in which risks and profits would be shared rather than predetermined through endless negotiation.

John Haney, 41, Shell's construction superintendent for Mars in Ingleside, Tex., said that by forming teams and sharing profit and loss risks equally with key contractors, such as Aker Gulf Marine in Ingleside, Shell gave its contractors an incentive to perform well. This, he said, marked a major advance over the oil company's traditional adversarial relationship with contractors.

Shell's design-while-building capability helped the Mars fabrication team cut about nine months off construction time, according to Haney.

Mars also will contain a feature that is considered unusual in the rough-and-ready oil industry: It will have a "meditation room," or quiet room, where an oilman can escape the pressures of living at close quarters—and perhaps come up with new ideas that might never have occurred to management.